

### REMARKS

Claims 1 to 45 are pending in the application; claims 35-39 are withdrawn.

#### Claim Rejections - 35 U.S.C. 112

Claims 1-3 and 5-34 stand rejected under 35 U.S.C. 112, 1st paragraph, as being broader than the enabling disclosure as a result of applicants failure to recite that the embedded particles are contained in microcapsules.

Applicant respectfully disagrees. The disclosure in general refers to the particles as being embedded in the coating; for example, page 3, paragraph 0008, first and second sentences:

"In this connection it is suggested to **embed in at least one coating** of a flat sheet material electrically and/or magnetically activatable particles. The **same or an additional coating** has fine cavities, for example, in the form of a suitable crystalline structure and, in particular, in the form of microcapsules as they are known in the manufacture of carbonless paper." (emphasis added)

Accordingly, the specification clearly discloses that the particles are embedded in the coating. This is realized by simply embedding them in the material of the coating itself or by placing them into the microcapsules. For example, Fig. 2 shows particles 5 and cavities 3, wherein the cavities 3 contain **no** particles and the particles 5 are simply embedded in the material of the coating. Fig. 3b shows particles 5 embedded in the coating 4' and cavities in the form of microcapsules 6 that do not contain particles. Figure 3 shows the coating 4 that contains cavities in the form of microcapsules 6 wherein some of the microcapsules contain a dye 7 and some of the microcapsules 6 contain particles 5. The disclosure therefore provides support for the chosen claim language, i.e., the particles are embedded in the coating.

Reconsideration and withdrawal of the rejection of the claims pursuant to 35 USC 112, 1st paragraph, are therefore respectfully requested.

Claims 5 and 7-9 stand rejected under 35 U.S.C. 112, 2nd paragraph, as being indefinite.

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In regard to the wording "embedded between the cavities" of claim 5, it is respectfully submitted that this is clearly shown in Fig. 2, as discussed above.

Claim 7 has been reworded in view of the examiner's remarks.

Reconsideration and withdrawal of the rejection of the claims pursuant to 35 USC 112, 2nd paragraph, are therefore respectfully requested.

**Rejection under 35 U.S.C. 102**

Claims 1-4, 14, 22 stand rejected under 35 U.S.C. 102(b) as being anticipated by *Sakurai et al. (US 5,006,422)*.

Claims 1-4, 6, 14, 22 and 24 stand rejected under 35 U.S.C. 102(b) as being anticipated by *Nakano (EP 0 822 532)*.

The present invention relates to a flat sheet material for manufacturing leaf-like sheets for receiving information. The sheet material comprises a coating applied onto a substrate, wherein the coating comprises at least a first layer (in order to provide a clearer understanding of the claim wording, the coating is defined as being comprised of layers, layers being shown in Fig. 3b; the term layer is also used in connection with coating in paragraph 0033 of the specification). Particles are embedded in the first layer; wherein the particles are electrically activatable particles, magnetizable particles or electrically activatable and magnetizable particles. By at least one of activation and magnetization of the particles when arranged in at least one of an electrical and a magnetic field, information is writable, retrievable and changeable on the sheet material. Fine cavities are provided in the coating. In a first embodiment, the cavities are in the same layer of the coating as the particles (claim 2), and a special configuration provides that the particles are arranged in the cavities (claim 4). Another embodiment provides that the cavities are provided in an additional layer of the coating (claim 40).

Such a configuration is not disclosed in any of the cited prior art references. U.S. 5,006,422 as well as EP 0 822 532 disclose rewritable recording media that make the information **visible** by means of magnetic particles. The present invention does not concern a sheet material that records visible information by means of magnetic particles

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but, as claimed in claim 1, concerns recording information by **magnetizing magnetizable particles**. Accordingly, the present invention is based on the principle of magnetizing particles only at the time of information recording by magnetization of magnetizable particles, i.e., a change of magnetization occurs when information is recorded by means of a magnetographic device (in the same way information is magnetically written on diskettes and tapes). This is explained in detail in the specification, paragraphs 0016 and 0017. Such a magnetization of magnetizable particles for recording information is not provided according to the cited prior art references.

U.S. 5,006,422 discloses a **visual** magnetic recording medium comprising a magnetic layer 13 (Fig. 1) having magnetic particles. Transparent layers 11, 12 are arranged on the magnetic layer 13. Layer 12 has microcapsules 14 that contain magnetic particles 17 suspended in a fluid (col. 4, lines 50-56). For information to be recorded and made visible, a technical principle is employed that differs from that of the present invention. According to U.S. 5,006,422, a magnetization of the particles 17 does not take place in order to record information. Instead, according to Fig. 2 and col. 6, lines 20-29, a magnetic field is applied acting on the layer 13 such that a permanent magnet with north/south poles is generated. The magnetic pattern is made visible by means of the magnetic particles 17 in the microcapsules 14 that orient themselves in accordance with the magnetic north and south poles of the magnetic layer 13. It should be noted that the orientation of the magnetic particles 17 is not a change of their magnetization; it is a simple alignment in accordance with the applied magnetic field. In contrast to the present invention, no new magnetization or re-magnetization of the particles takes place. The information recordation is carried out only within the magnetic layer 13, and the layer 12 serves only as a visual display of the magnetic pattern. Depending on the orientation of the suspended magnetic particles 17 within capsules 14, the layer 12 becomes transparent or opaque (col. 5, lines 20-27; col. 5, line 63, to col. 6, line 8; col. 6, lines 33-38).

In contrast to the present invention, the disclosed particles 17 are not magnetizable in the sense that information is stored in them in readable or changeable form by

magnetization of the particles. The present invention as claimed is therefore not anticipated by this prior art reference.

The rewritable indication label of EP 0 822 532 does not disclose any more than the already discussed patent U.S. 5,006,422; magnetic particles 11 are suspended in cavities 10, as shown in Figs. 2 and 3. As in U.S. 5,006,422, depending on the applied magnetic field, the magnetic particles 11 will orient themselves within the microcapsules in which they are free-floating. The particles themselves are not magnetized to become themselves information carriers; their state of magnetization does not change; they simply re-orient themselves spatially, like iron filings to the field lines of a magnet, and do not change their magnetization for recording information. Instead, only a spatial reorientation takes place that changes the optical properties of the sheet material (shown in Figs. 2 and 3). The invention is claimed in claim 1 is therefore also not anticipated by EP 0 822 532.

An information disclosure statement is being filed concurrently. The reference GB 1 568 151 submitted with the information disclosure statement discloses in the only figure a sheet material comprised of paper coated with magnetizeable particles in the coating. Information is recorded on the sheet by magnetizing these particles. The arrangement of cavities in this coating or any other coating is not disclosed.

The present invention is not obvious in view of the cited prior art references U.S. 5,006,422, EP 0 822 532, and GB 1 568 510. U.S. 5,006,422 and EP 0 822 532 disclose arranging magnetic particles on a sheet in microcapsules such that the particles can float and align themselves in accordance with an external magnetic field. The information is not recorded by changing the state of magnetization but by changing the spatial alignment of the particles. When considering all three references, it is apparent that there are two different principles of information recording by means of such particles. The first principle relates to embedding the particles fixedly within the coating in order to change magnetization (GB 1 568 510). A change of spatial orientation as disclosed in U.S. 5,006,422 and EP 0 822 532 is not possible in this configuration. The second principle of recording information is disclosed in U.S. 5,006,422 and EP 0 822 532 where

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microcapsules are provided in which magnetic particles are suspended so that they can float and assume an orientation in accordance with an external magnetic field. The floating arrangement does not provide for information recording by changing the magnetization of the particles as suggested in GB 1 568 510.

A person skilled in the art when looking at all three references can only come to the conclusion that, in the alternative, information is either recorded by changing the magnetic state of fixedly embedded particles or by reorienting floatingly arranged magnetic particles in accordance with an external magnetic field. However, one approach precludes the other. Accordingly, a person skilled in the art cannot derive any suggestion in regard to using microcapsules in addition to fixedly embedded magnetizable particles. Therefore, the present invention as claimed is not obvious in view of the cited prior art references.

In recapitulating the above, Applicant would like to emphasize that the basic idea of the present invention resides in arranging electrically activatable and, in particular, magnetizable particles in cavities wherein the information is recorded by a targeted magnetization of such particles; this is not anticipated by the cited prior art. Also, a combination of the contradictory teachings of the cited prior art references does not lead a person skilled in the art to arrive at the invention as claimed in claim 1.

#### **Rejection under 35 U.S.C. 103**

Claims 15-21, 23, 24, 31-34 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Sakurai et al.* or *Nakano*.

Amended claim 1 is believed to be allowable and claims 15-21, 23, 24, 31-34 should be allowable as dependent claims.

#### **NEW CLAIMS 42-45**

Applicant has submitted a set of claims directed to a carbonless set of the inventive sheet material, i.e., a special configuration of the basic inventive concept. The arguments presented above in regard to the magnetizable particles and the differences to the prior art apply here as well.

Moreover, the cited prior art references do not concern carbonless sets.

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### ALLOWABLE SUBJECT MATTER

The examiner has not rejected claims 5, 7-13, and 25-30 over prior art. The claims are therefore believed to be allowable provided the rejections under 35 USC 112 are overcome. However, at this time, applicant is of the opinion that claim 1 should be allowable over the prior art without requiring any limitations from other claims.

### CLAIMS FEES

The instant amendment submits 6 new claims and one extra independent claim. The required fees in the amount of 6 x \$50.00 (fee code 1202) = \$300 and 1 x \$200 (fee code 1201) = \$200 is to be charged to USPTO deposit account 50-1199.

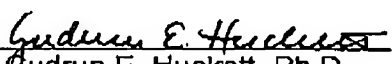
### CONCLUSION

In view of the foregoing, it is submitted that this application is now in condition for allowance and such allowance is respectfully solicited.

Should the Examiner have any further objections or suggestions, the undersigned would appreciate a phone call or e-mail from the examiner to discuss appropriate amendments to place the application into condition for allowance.

Authorization is herewith given to charge any fees or any shortages in any fees required during prosecution of this application and not paid by other means to Patent and Trademark Office deposit account 50-1199.

Respectfully submitted on December 16, 2004,

  
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